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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/707,289

12/03/2003

Steven H. Voldman

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1288

30449

7590

03/22/2005

SCHMEISER, OLSEN + WATTS
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LATHAM, NY 12110

EXAMINER

TRINH, HOA B

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/707,289	Applicant(s) VOLDMAN ET AL.	
	Examiner Vikki H. Trinh	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 12-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group II and a nonelected Group III, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 01/03/05.
2. Applicant's election with traverse of Group I, claims 1-11, in the reply filed on 01/03/05 is acknowledged. The traversal is on the ground(s) that all of the present application claims 1-20 are sufficiently related that a search would encompass all of the claims. This is not found persuasive because, as stated in the previous Office Action, the restriction is proper, since the inventions are distinct.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Parris et al. (5,929,478) (hereinafter Parris).

As to claim 1, Parris discloses an integrated circuit structure, comprising a substrate 21 (fig. 3) having a top surface defining a horizontal direction, said substrate 21 (fig. 3) of a first dopant type (col. 2, line 45); a first horizontal layer 22 (fig. 3) in said substrate 21, said first

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Layer 22 (fig. 3) of a second dopant type (col. 2, line 46); and a second horizontal Layer 27 (fig. 3) of said first dopant type (col. 3, line 4) , said second Layer 27 (fig. 3) on top of said first Layer 22 (fig. 3) and between said top surface of said substrate and said first Layer 22, said second Layer 27 electrically modulated by said first Layer 22 (fig. 3).

Regarding to claim 2, the structure includes a source 41 (fig. 3) and a drain 42 (fig. 3) of the first dopant type (col. 4, lines 5-8) in said second layer 27 (fig. 3) and a gate 36 (fig. 3) formed on said top surface and aligned to said source 41 and said drain 42 (fig. 3); and a first vertical bipolar transistor 11 (fig. 3) comprising said source 41(fig. 3) , said second Layer 27 (fig. 3)and said first Layer 22 (fig. 3), and a second vertical bipolar transistor 11 (fig. 3) comprising said drain 42 (fig. 3), said second layer 27 (fig. 3) and said first layer 22 (fig. 3).

Regarding to claim 3, the structure includes a third horizontal Layer 32 (fig. 3) of said second dopant type (col. 4, lines 5-8) on top of and in contact with said first Layer 22 (fig. 3) and extending vertically into said first Layer 22 (fig. 3), said second Layer 27 (fig. 3) further electrically modulated by said third Layer 32 (fig. 3) .

As to claim 4, the third Layer 32 (fig. 3) extends horizontally under said source 41 (fig. 3), said drain 42 (fig. 3) and said gate 36 (fig. 3).

As to claim 5, the third Layer 32 (fig. 3) extends horizontally under a shallow trench isolation 49, or 62 (fig. 3) formed between said source 41 (fig. 3)or said drain 42 (fig. 3) and a contact to said second Layer 27 (fig. 3).

As to claim 6, the third Layer 32 (fig. 3) extends horizontally under a contact 58 (fig. 3) to said second Layer 27 (fig. 3).

As to claim 7, a vertical isolation 58 (fig. 3) comprising shallow trench isolation 49 (fig. 3) in combination with deep trench isolation 29 (fig. 3), said vertical isolation 58 (fig. 3) extending vertically from said top surface of said substrate 21 (fig. 3) into or past said first Layer 22 (fig. 3) and isolating said second Layer 27 (fig. 3).

As to claim 8, multiple fingers of source 41 (fig. 3), multiple fingers of drain 42 (fig. 3) or multiple fingers of both source 41 (fig. 3) and drain 42 (fig. 3), a gate 36 (fig. 3) formed on said top surface and aligned to said source 41 (fig. 3) and drain 42 (fig. 3) fingers ; one or more vertical bipolar transistors 11 (fig. 3) each comprising one source 41 (fig. 3) finger, said second Layer 27 (fig. 3) and said first Layer 22 (fig. 3); and one or more vertical bipolar transistors 11 (fig. 3) each comprising one drain 42 (fig. 3) finger, said second Layer 27 (fig. 3) and said first Layer 22 (fig. 3).

As to claim 9, the first horizontal Layer 22 (fig. 3) is the same as a subcollector of a bipolar transistor 11 (fig. 3) formed in said substrate 21 (fig. 3).

As to claim 10, the first dopant type is P-type (col. 2, line 45) and said second dopant type is N-type (col. 2, line 46) .

As to claim 11, said second Layer 27 comprises epitaxial silicon (col. 3, line 5).

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705. The office fax number is 703-872-9306.

Any request for information regarding to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests

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to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

Vikki Trinh,
Patent Examiner
AU 2814

A handwritten signature in black ink, appearing to read 'Howard Weiss', written in a cursive style.

HOWARD WEISS
PRIMARY EXAMINER